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Technical Report

AD 640 107

MECHANIZATION STUDY OF THE PLASTICS TECHNICAL EVALUATION CENTER, U. S. ARMY PICATINNY ARSENAL, DOVER, N. J.

Submitted to

Defense Supply Agency
Defense Documentation Center
Cameron Station, Virginia

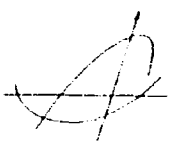
by

Booz, Allen Applied Research Inc.
4733 Bethesda Avenue
Bethesda, Maryland 20014

Under Contract No. DSA-7-15489

BAARINC Report No. 914-1-12

September 1966



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ABSTRACT

Under contract to the center, Franklin Institute processes R&D reports for input to Honeywell 140 computer. The major output is the PLASTEC Document Index; four other outputs are used for control purposes. The computer program is limited to alphabetization and arrangement functions. No machine retrieval has been attempted. The Index contains document numbers which refer to a storage location at PLASTEC. Without a companion volume of citations related to these numbers (which does not exist at present), the Index is of no value to an outside reader and is therefore not distributed.

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A P P E N D I C E S

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I. SUMMARY

The Plastics Technical Evaluation Center (PLASTEC) is responsible to the Department of Defense as a central source of information on plastics. Under contract to PLASTEC, the Franklin Institute, located in Philadelphia, Pennsylvania, processes, abstracts, and indexes R&D reports for use at the Center. The index to these reports is prepared and maintained by computer. This output is called the PLASTEC Document Index. By-product runs in the production of this output are used for vocabulary and indexing control. Thus, the computer automates the preparation of the PLASTEC Document Index, but storage and retrieval of these documents are manual.

Figure 1 illustrates the PLASTEC information processing system, and Appendix A indicates the division of library functions between PLASTEC and Franklin Institute.

To use the document collection, the five subject specialists currently with the Center (see Appendix A) refer directly to the PLASTEC Document Index. Users from outside the Center depend on the Library staff for application of the Index and other tools in answering their inquiries. After noting applicable document numbers,

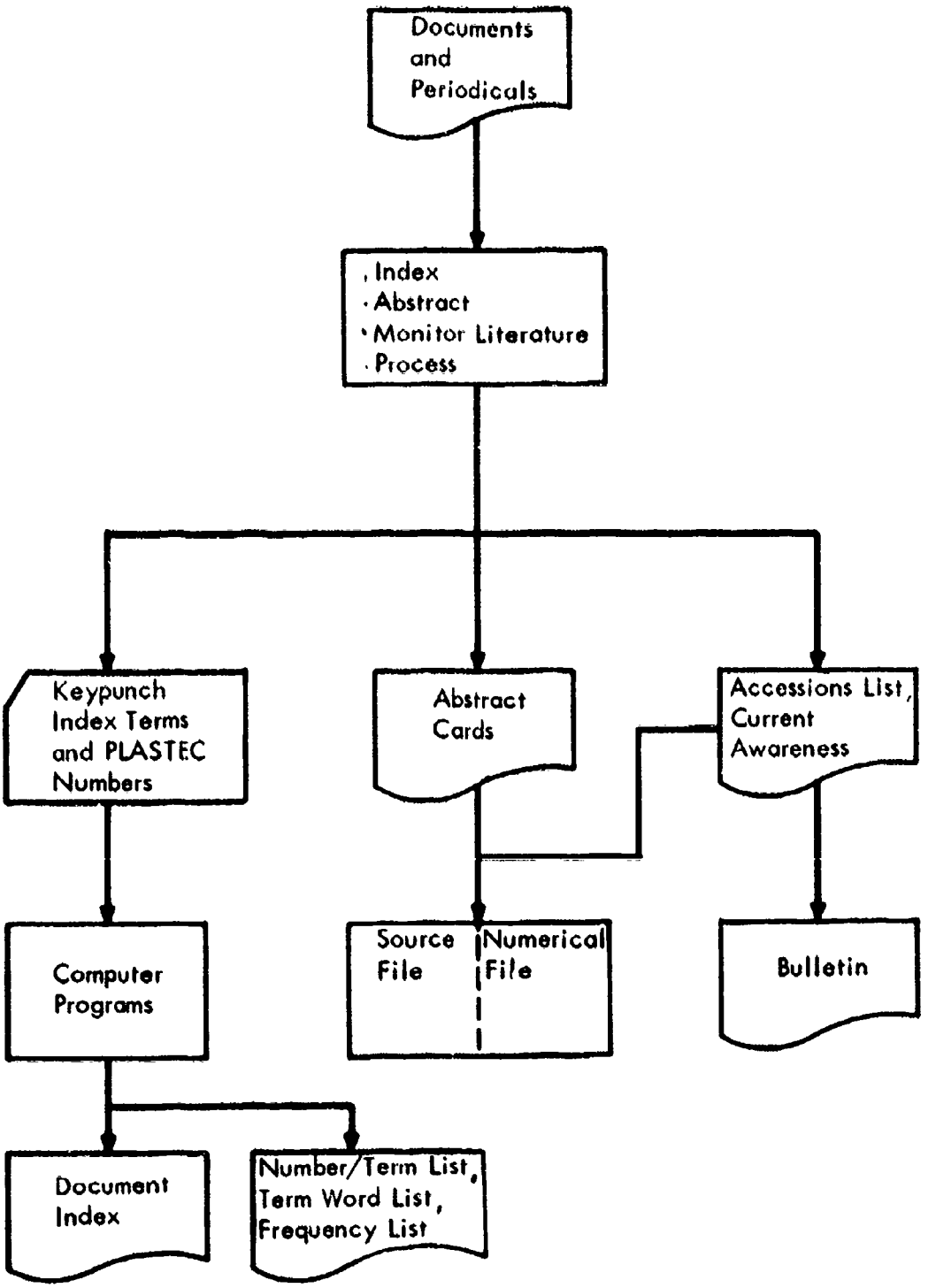


FIGURE 1

Processing Diagram for PLASTEC Information

the searcher then refers either to the abstract card file for further decision concerning the relevancy of the documents or else he may go directly to the documents for information. For certain requirements, the searcher may find his answer within the abstract card itself.

PLASTEC maintains a library, for in-house use only, of books, periodicals, reports, government and commercial specifications and standards, manufacturers' catalogs, and proprietary literature. Quantitatively, these holdings are: 217 reference books (handbooks, design manuals, and textbooks) necessary for use as everyday tools; 506 bound and unbound volumes of periodicals on plastics, ceramics, and metals (64 annual subscriptions); 7,500 R&D reports growing at a current rate of 2,500 per year; 30 linear feet of manufacturers' and suppliers' catalogs primarily within the plastics subject area; a file of up-to-date standards and specifications issued by the government and industry as they become available; and a file of several hundred proprietary reports, many of which have not been released to any other known source.

II. MECHANIZATION

1. CHRONOLOGY

Development of the existing system began in 1962, and the first Index was printed in August of that year. Since then, successive printings have been made every six months. The list of official term words is continually being edited and improved.

2. DESCRIPTION OF PROCESSES

The following procedures are used to produce a 5 x 8 index card and five outputs.

(1) Input Procedures

1. Reports and periodicals are received at PLASTEC and the subject specialists select the items to be included in the files. Items are then forwarded to Franklin Institute.

2. Upon receipt at Franklin, document accession numbers (PLASTEC numbers) are assigned. One PLASTEC number is assigned for all progress reports under one contract; individual technical reports (not progress-type reports) on one contract are given separate PLASTEC numbers. One PLASTEC number is assigned to a volume of conference

proceedings, and individual papers within the volume are indicated by -1, -2, etc.

3. Reports are given to the indexer who reviews the terms necessary to insure recall of the document. To date, this has averaged 4 or 5 terms per document, primarily because of the use of precoordinated terms.

4. A 5 x 8 card is prepared (Figure 2), which includes all bibliographic data, security classification, PLASTEC number, an abstract, and assigned subject index terms. The documents now completely processed are returned to PLASTEC with the 5 x 8 cards.

PLASTEC 6657

American Machine and Foundry Company.
PRODUCTION REFINEMENT OF VERY THIN TEFLON FILM by W. K. W. Chen and others. March 1963. Final technical engineering report. ASD Technical report ASD TR-63-229. Period: 24 October 1955 - 15 April 1962. AF contract AF 33(600) 34013. AD-420 640.

Dynamically cast thin Teflon films provide insulation for capacitors operated to temperatures of 200°C. This report discusses the method for producing high quality, thin Teflon films and describes how the parameters of foil belt thickness, Teflon dispersion solids, ph, rate of curing, and effect of wetting agents can vary the dielectric strength of the film. Teflon films were tested by being wound as insulation into capacitors and then tested under load-life conditions at 200°C. There are 15 tables and 31 figures. (Author, modified).

Film-Thin, Teflon; Casting-Thin teflon film; Dielectric-Teflon film; Curing-Thin teflon film; Capacitor-Teflon film insulation.

FIGURE 2
5 x 8 Index Card

5. A worksheet is completed that includes the terms and PLASTEC numbers to be added to the computer files. Also, corrections or changes made in either of the two files (author and subject) are added to these worksheets. All worksheets are edited by a single person to insure consistency and accuracy and are then sent to the computing center for keypunching.

6. Terms and PLASTEC numbers are keypunched, one term per card.

7. This information is converted from card form to magnetic tape.

8. This tape used as the input is fed into a computer which inverts the Author File by alphabetizing authors' names and also arranges PLASTEC numbers in numerical order within each term. The Subject File is also inverted and alphabetically arranged.

9. A two-column page is used. Because of software limitations, term length must be kept to a maximum of 45 spaces. This output is produced by a high-speed printer on duplimat stock which is then offset printed.

10. The tape files are again machine manipulated for the printing of four additional outputs; a Number List,

a Number/Term List, a Term Word List, and a Frequency List. These lists are used primarily for the control of vocabulary and indexing.

(2) Outputs

1. PLASTEC Document Index

This Index is divided into two sections. In the first section, personal or corporate authors and conference names are listed alphabetically with the PLASTEC number (see Appendix B-1 for sample). In the second section, coordinated index terms are listed alphabetically with PLASTEC numbers (Appendix B-2).

The completed Index is forwarded to PLASTEC Technical Library and to each of the five subject specialists.

In using the Index, the user is lead to a PLASTEC number. He may either locate the document on the shelves or refer to the abstract card for further information on the relevancy of the document to the specific item of interest.

2. Number List

This printout shows, in sequence, all the PLASTEC

document numbers on file in the system (see Appendix B-3 for sample).

3. Number/Term List

The number/term list (Appendix B-4) contains each of the PLASTEC numbers in sequence and each index term alphabetically within numbered sequence. This file is used as a checklist for editing, quickly indicating what terms have been assigned to a particular report. The 12-character terms originally used have been expanded to 45 characters because 12 characters did not permit adequate recognition of bound terms, most of which contain three or more words.

4. Term Word List

This alphabetical printout of terms (Appendix B-5) is used for vocabulary control. The indexers check each term with the latest machine printout, using an existing term whenever possible. New terms are always being added. The sequence numbers of the terms and the PLASTEC numbers to which they are posted are included in the list.

5. Frequency List

This alphabetical printout (Appendix D-6) indicates the number of postings per term. A maximum

of 25 postings per term is allowed; when this number is exceeded, further precoordination will be carried out. It was felt that more than 25 postings per term would discourage use of the Index. This frequency list serves as a dictionary of terms.

III. PROGRAM SYSTEM DATA

The computer program for PLASTEC is purposely limited to alphabetization and arrangement functions. No machine retrieval has been attempted. Other needed files are maintained in the conventional library form: numerical (shelf file) and corporate author. File cards contain citation and abstract.

The Index is the only printout that is circulated. All other printouts serve as work copies or auxiliary files for making changes or deletions and as bases for statistical information.

All runs except sorts are in COBOL language. Sorts are in machine language (Honeywell 1400). Computer processing consists of 11 routines. These routines are used for both Author File and Subject File.

1. FILES

Two files (Author File and Subject File) are maintained in identical formats of 10 words per record. The first two words contain a nine-character document accession number (PLASTEC number), left justified (the first eight high-order characters are in word one and the ninth character is in word two). The next six words contain a 45-character author name or descriptor term, left justified.

The ninth word contains a term number and the tenth contains a frequency number, both right justified. The files are maintained in sequence by the 45-character descriptor field first, and, within that, by PLASTEC number.

2. ROUTINES

(1) Punched cards containing changes are converted to tape. This routing introduces changes, corrections, and deletions into the previous master Subject File.

(2) The tape is then sorted by term number and type of change. At the present time, five changes are being used, (1) frequency delete, (2) frequency change, (5) term delete, (6) term change, (7) PLASTEC number change. (See Appendix C for procedure used in correcting PLASTEC index terms.)

(3) The Subject File is then updated in accordance with routine 2.

(4) The tape of routine 3 is next sorted by term word first and, within that, by PLASTEC number.

(5) Punched addition cards (new information) are now converted to tape.

(6) The addition tape is then sorted by term word and PLASTEC number.

(7) Routines 4 and 6 are merged, edited for final index layout, and split into left and right page columns. A tape is created which is used to produce the term word list and the frequency list. The Index is the main output of this process.

(8) The Index is printed from routine 7.

(9) The term word list and the frequency list are printed from routine 7. The term word printout lists each term with its PLASTEC number plus a sequential term number (not printed in the Index but used for change purposes). The frequency list differs from the term word list in that all repetitive terms are dropped and no PLASTEC numbers are given. It is in fact the dictionary of terms used in the Index.

(10) The term word list from routine 7 is next sorted by PLASTEC number and, within that, by term.

(11) The number/term list and the number list are then printed. These auxiliary (reverse) lists indicate what documents are in the file and by what terms they are identified.

3. DICTIONARY OF TERMS

The list of terms used to index documents (frequency list) is continually being updated. New terms are added by indexers only when required; the editor making the final decision as to whether such additions are justified. When the frequency of postings for a term exceeds 25 documents, the term is expanded so as to be more specific. Observed use has shown that a greater number of postings results in less enthusiastic use of the Index.

Indexers and users of the Index are subject oriented. Therefore common abbreviations of these subject terms are permitted.

To eliminate the use of commas and inverted terms, coordinated terms not sufficiently clear as a bound concept are connected by a hyphen and arranged alphabetically in the printouts by the first term of the pair. The highest interest term, which is generally a property or use-oriented term, is always placed so that it is first in the pair.

A list of style rules has been developed for use as a guide by the indexers. They include rules for: (a) use of dashes, commas, and slash marks for separating bound terms; (b) use of abbreviations of subject terms; (c) when and when not to use the singular or plural form; (d) two-part, PLASTEC document number, etc.

IV. EQUIPMENT, COSTS, AND EVALUATION

1. EQUIPMENT

The following is a list of the Honeywell hardware in the Franklin Institute Computing Center. This equipment is used for business-type problems, such as accounting, mailing lists, etc. It is operated 2 shifts at present. Franklin uses FORTRAN and COBOL compilers and Easy II assembly language.

140	with 4K memory (one 48-bit word)
140 C	console
140 -PC	power supply
140 - B	floating point arithmetic unit
404-3	tape drive 48KC (6 drives)
422-4	high-speed printer, 900 LPM, 120-character positions
427	card reader/punch (IBM 1402)

2. COSTS AND TIME

Existing program tape was available at Franklin for use. After the problem was defined, programming took 6 weeks. Indexing rate averages 2-7/8 doc nents per hour. Four hours of computer time were required to process the first Document Index and 8 hours

for the second. The latter time is broken down into 3 hours for adding new material, 3-1/2 hours for corrections, and 1-1/2 hours for merging the two sets alphabetically and arranging terms for printout.

Estimated Breakdown PLASTEC Project
May 14, 1963 to May 13, 1964

Item	Quantity	$	$/document
Abstracting	1920 documents	15,700	8.20
Indexing	3370 documents	16,600*	4.90
Processing+	6000 documents	11,600	1.90
Current Awareness (5 months)		1,600	-
Electrical properties	120 data sheets	800	-
Data Study (report)		6,000	
Total		52,300	15.00

* includes $1,900 in computing center
\+ includes acquisition, cataloging, checking, updating files, accessions list, zerox, concordance, and handling.

NOTE: PLASTEC advises that contract costs are $43,000 to $47,000 per year.

3. FACILITY'S EVALUATION OF SYSTEM

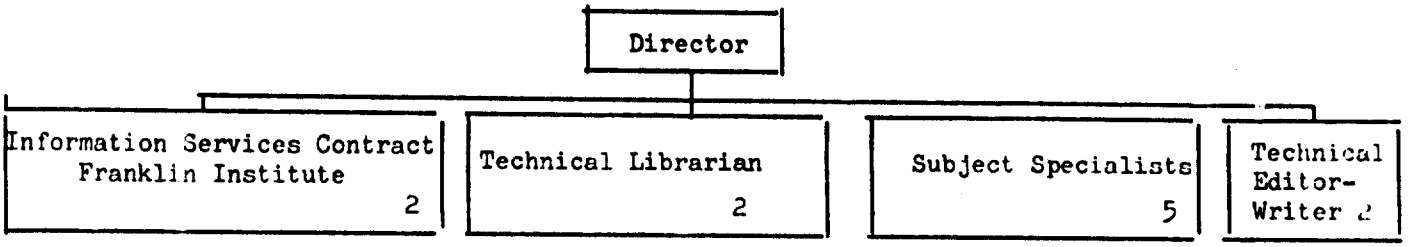
The system was developed for an information center having a reasonable number of documents in a limited subject area. It has not been evaluated under any other conditions.

The subject specialists and most other users of the Index are necessarily familiar with the terms so abbreviations peculiar to the subject are acceptable; library terms and abbreviations are not.

The Index yields document numbers which refer to a storage location at PLASTEC. This limits the usefulness of this Index to an in-house tool. Without a companion volume of citations related to these numbers, the Index would be of no value to an outside reader. For this reason, copies of the Index are not distributed outside PLASTEC.

In summary, the computer use at PLASTEC is limited to alphabetization, arrangement, and printing of an Index. Document retrieval is manual.

PLASTICS TECHNICAL EVALUATION CENTER



Assign control or accession numbers
Prepare main entry/subject catalog cards
Maintain catalog authorities*
Assign subject heading terms (reports)
Perform subject and author indexing for periodicals
Prepare abstracts or analytical notes
File entries**
Prepare list of acquisitions
Translate abstracts of technical interest appearing in foreign periodicals

Perform acquisitions of books, periodicals, technical reports which includes budgeting, ordering, security control
Review periodicals for "specific interest" routing
Circulate weekly bulletin containing current accessions and abstracts from foreign periodicals
Check in periodicals, match and inspect shipment
Receive technical reports on distribution or special request
File entries
Answer reference questions and inquiries
Prepare bibliographies
Maintain specific area reference files
Perform literature searches
File/circulate books, reports, periodicals
Perform interlibrary loan transactions
Control classified reports; receiving, circulation, downgrading, destruction, inventory
Take inventory of periodical/book collection
Perform statistical accounting
Supervision of clerical and semi-professional help
Supervision and direction of contract services
Develop methods and routines
Provide liaison between information and evaluation services

Structural Plastics
Electrial-Electronic Uses
Packaging
Mechanical Uses

Conduct studies and prepare reports, with attendant bibliographies and literature searches
Maintain awareness of current R&D projects involving plastic materials in government and industry
Review incoming material for inclusion in Library
Answer technical inquiries

* Mechanized
** Both mechanized and nonmechanized

PLASTEC NUMBER LIST

3716-22	3716-23	3716-24	3716-25	3716-26	3716-27	3716-28
3716-31	3716-32	3716-33	3716-34	3716-35	3716-36	3716-37
3716-40	3716-41	3716-42	3716-43	3716-44	3716-45	3716-46
3716-4	3716-50	3716-51	3716-52	3716-53	3716-54	3716-55
3716-59	3716-5	3716-60	3716-61	3716-62	3716-63	3716-64
3716-68	3716-69	3716-6	3716-7	3716-8	3716-9	3717-10
3717-14	3717-15	3717-16	3717-17	3717-18	3717-19	3717-1
3717-23	3717-24	3717-25	3717-26	3717-27	3717-28	3717-29
3717-32	3717-33	3717-34	3717-35	3717-36	3717-37	3717-38
-B 3717-41	3717-42	3717-43	3717-44	3717-45	3717-46	3717-47
3717-50	3717-51	3717-52	3717-53	3717-54	3717-55	3717-56
-D -C 3717-5	3717-60	3717-61	3717-62	3717-63	3717-6	3717-7
3719-2	3720	3721	3722	3723	3724	3725
3730	3731	3733	3734	3735	3736	3737
3742-12	3742-13	3742-14	3742-15	3742-16	3742-17	3742-18
3742-21	3742-22	3742-23	3742-24	3742-25	3742-26	3742-27
3742-30	3742-31	3742-32	3742-33	3742-34	3742-35	3742-3
3742-7	3742-8	3742-9	3744-10	3744-11	3744-12	3744-13
3744-17	3744-18	3744-19	3744-1	3744-20	3744-21	3744-22
3744-26	3744-27	3744-28	3744-29	3744-2	3744-30	3744-31
3744-35	3744-36	3744-37	3744-38	3744-39	3744-3	3744-40
3744-44	3744-45	3744-46	3744-47	3744-48	3744-49	3744-4
3744-53	3744-54	3744-55	3744-56	3744-57	3744-58	3744-59
3744-62	3744-63	3744-64	3744-6	3744-7	3744-8	3744-9
3745-45	3745-4	3745-5	3745-6	3745-7	3746	3747-1
3748-11	3748-12	3748-1	3748-2	3748-3	3748-4	3748-5
3748-9	3749-1	3749-2	3749-3	3749-4	3749-5	3750
3750-4	3751	3752	3753	3754	3755	3756

NUMBER-TERM LIST

PLASTEC NO	TERM WORD
1379	ADHESIVE-NITRILE RUBBER/PHENOLIC
1379	PEEL STRENGTH-NITRILE PHENOLIC
1380	ABLATION-ASBESTOS/EPOXY/PHENOLIC
1380	COATING-ALUMINIZED FRP TAPE
1380	FIBER-SILICA
1380	INSULATION-SATURN
1380	SATURN MISSILE
1380	THERMAL RADIATION
1381	COMPRESSION-FRP/EPOXY
1381	ELECTRICAL PROPERTIES-FRP/MELAMINE
1381	ELECTRICAL PROPERTIES-PAPER/PHENOLIC
1381	FATIGUE-FRP/EPOXY
1381	FLEXURAL STRENGTH-FRP/EPOXY
1381	MECHANICAL PROPERTIES-FRP/EPOXY
1381	MECHANICAL PROPERTIES-FRP/POLYESTER
1381	MOLDING
1381	TENSILE STRENGTH
1382	CURING-POLYESTER
1382	DIELECTRIC-HIGH TEMPERATURE
1382	DIELECTRIC-SILICONE
1382	ELECTRICAL PROPERTIES-FILLER/EPOXY
1382	ENCAPSULATION-HIGH TEMPERATURE
1382	HIGH TEMPERATURE-POLYESTER
1382	SILICONE
1384	DAMPING-SILICONE RUBBER
1384	VIBRATION-DAMPING
1386	PLASTICS-RESEARCH
1387	ABLATION-EPOXY

TERM NO	TERM WORD	PLASTEC NO
24331	TITANIUM STRIP	2014
24332	TITANIUM TAPE	2177
24333	TITANIUM-BETA,WIRE	2116
24334	TITANIUM-DESIGN	3767
24335	TITANIUM-USE	2559
24336	TOOL	3716-24
24337	TOOLING	0063
24338	TOOLING	0066
24339	TOOLING	1409
24340	TOOLING	3713-18
24341	TOOLING	3716-25
24342	TOOLING	3717-18
24343	TOOLING	5801
24344	TOOLING	5802
24345	TOOLING	5807
24346	TOOLING EPOXY-FABRICATION	5796
24347	TOOLING FABRICATION-PLASTIC	1973
24348	TOOLING MATERIAL-CAST PLASTIC	1982
24349	TOOLING MATERIAL-TEST METHOD	1987
24350	TOOLING RESIN-EPOXY	5489
24351	TOOLING RESINS-MECHANICAL PROPERTIES	1906
24352	TOOLING SEMINAR, SPI	4113
24353	TOOLING-ADHESIVE/METAL	3058
24354	TOOLING-BLOW MOLDING,SURVEY	5945-3
24355	TOOLING-CERAMIC	5804
24356	TOOLING-CORROSIVE ENVIRONMENT	5838
24357	TOOLING-DESIGN	1865
24358	TOOLING-DISPOSABLE,HOLLOW PLASTIC ARTICLES	5300

FREQUENCY LIST

FREQ NO	TERM WORD	FREQUENCY
	ABLATION-STUDY	1
1	ABLATION-TEFLON	1
2	ABBE MIXING	1
3	ABLATION COOLING	1
4	ABLATION -SEE ALSO DEGRADATION	1
5	ABLATION -SEE ALSO HEAT	1
6	ABLATION -SEE ALSO HEAT OF ABLATION	1
7	ABLATION SHIELDING	2
9	ABLATION TEST-NYLON/PHENOLIC LAMINATE	6
15	ABLATION-ACRYLIC ESTER	1
16	ABLATION-ACRYLIC RUBBER/PHENOLIC	1
17	ABLATION-ACRYLONITRILE/BUTADIENE-PHENOLIC	1
18	ABLATION-ALUMINA/PHENOLIC	2
20	ABLATION-AMIDE/IMIDE RESIN	1
21	ABLATION-AMMONIUM CHLORIDE	1
22	ABLATION-ASBESTAS/RESIN	1
23	ABLATION-ASBESTOS REINFORCED PHENOLIC	1
24	ABLATION-ASBESTOS REINFORCED PLASTIC	2
26	ABLATION-ASBESTOS TAPE	1
27	ABLATION-ASBESTOS/EPOXY/PHENOLIC	1
28	ABLATION-ASBESTOS/NYLON/PHENOLIC	2
30	ABLATION-ASBESTOS/PHENOLIC	23
53	ABLATION-ASBESTOS/PHENOLIC/PHENYLSILANE	1
54	ABLATION-ASBESTOS/SILICONE	5
59	ABLATION-ASCENT CONDITIONS	1
60	ABLATION-BIBLIOGRAPHY	10
70	ABLATION-BRIGHTNESS TEMPERATURE	1

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

ORIGINATING ACTIVITY (Corporate author) BOOZ - ALLEN APPLIED RESEARCH, INC. 4733 Bethesda Avenue Bethesda, Maryland 20014	2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP

3. REPORT TITLE

Mechanization Study of the Plastics Technical Evaluation Center, U. S. Army Picatinny Arsenal, Dover, N. J.

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

Final Report of on-site survey

5. AUTHOR(S) (Last name, first name, initial)

G. A. Kershaw, D. Crowder, J. E. Davis, E. G. Loges, E. Merendini, S. M. Thomas

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
September, 1966	35	0

8a. CONTRACT OR GRANT NO	9a. ORIGINATOR'S REPORT NUMBER(S)
DSA-7-15489	914-1 - 12
b. PROJECT NO	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
	AD 640 107

10. AVAILABILITY/LIMITATION NOTICES

Distribution of this Document is unlimited

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
None	Defense Supply Agency Defense Documentation Center Cameron Station, Virginia

13. ABSTRACT

Under contract to the Center, Franklin Institute processes R&D reports for input to the Honeywell 140 computer. The major output is the PLASTEC Document Index; four other outputs are used for control purposes. The computer program is limited to alphabetization and arrangement functions. No machine retrieval has been attempted. The index contains document numbers which refer to a storage location at PLASTEC. Without a companion volume of citations related to these numbers (which does not exist at present), the Index is of no value to an outside reader and is therefore not distributed.

Security Classification

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Data						
Digital Computer						
Indexes						
Information Systems						

INSTRUCTIONS

1. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization (*corporate author*) issuing the report.

2a. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.

2b. GROUP: Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.

3. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.

4. DESCRIPTIVE NOTES: If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.

5. AUTHOR(S): Enter the name(s) of author(s) as shown on or in the report. Enter last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.

6. REPORT DATE: Enter the date of the report as day, month, year, or month, year. If more than one date appears on the report, use date of publication.

7a. TOTAL NUMBER OF PAGES: The total page count should follow normal pagination procedures, i.e., enter the number of pages containing information.

7b. NUMBER OF REFERENCES: Enter the total number of references cited in the report.

8a. CONTRACT OR GRANT NUMBER: If appropriate, enter the applicable number of the contract or grant under which the report was written.

8b, 8c, & 8d. PROJECT NUMBER: Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.

9a. ORIGINATOR'S REPORT NUMBER(S): Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to this report.

9b. OTHER REPORT NUMBER(S): If the report has been assigned any other report numbers (*either by the originator or by the sponsor*), also enter this number(s).

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(2) "Foreign announcement and dissemination of this report by DDC is not authorized."

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